WHAT IS CLAIMED IS:

1. A medical device for implantation in a vessel, comprising at least one anastomotic member at least partially interposing a non-woven liner of electrospun fibers and a non-woven cover of electrospun fibers;

said at least one anastomotic member being designed for engaging at least one end of the medical device to a wall of the vessel upon implantation of the medical device within the vessel.

2. The device of claim 1, wherein said at least one anastomotic member protrudes out of said non-woven cover.

3. The device of claim 1, wherein said at least one anastomotic member is flush with said non-woven cover.

4. The device of claim 1, wherein said at least one anastomotic member comprises an expandable supporting element.

5. The device of claim 4, wherein said engaging said at least one end of the medical device to said wall of the vessel is effected by pressure generated by an expansion of said expandable supporting element.

6. The device of claim 1, wherein said at least one anastomotic member comprises a plurality of hooks for connecting the device to said wall of the vessel.

7. The device of claim 1, further comprising a ring-shaped protuberance designed and constructed to prevent the device from falling into a lumen of the vessel.

8. The device of claim 6, wherein said at least one anastomotic member comprises an expandable supporting element.

9. The device of claim 8, wherein said plurality of hooks is designed and constructed such that when said expandable supporting element expands, said plurality of hooks pierce said wall of the vessel, thereby mounting the device to the vessel.

10. The device of claim 8, wherein said plurality of hooks is designed and constructed to pierce an inner wall of the vessel and to protrude out of an outer wall of the vessel.

11. The device of claim 10, further comprising at least one perforated member mounted on said non-woven cover in a manner such that protruding portions of said plurality of hooks engage said at least one perforated member.

12. The device of claim 10, further comprising a pressing ring for bending protruding portions of said plurality of hooks, thereby perverting detachment of said plurality of hooks from said wall of the vessel.

13. The device of claim 12, further comprising a thrust ring for thrusting said pressing ring.

14. The device of claim 12, further comprising a lever for establishing contact between said thrust ring and said pressing ring.

15. The device of claim 1, forming a furcating structure having a plurality of tubular branches.

16. The device of claim 1, wherein said at least one anastomotic member is adapted for end-to-side anastomosis.

17. The device of claim 1, wherein said at least one anastomotic member is adapted for end-to-end anastomosis.

18. The device of claim 15, wherein at least one end of said furcating structure is adapted for end-to-side anastomosis.

19. The device of claim 15, wherein at least one end of said furcating structure is adapted for end-to-end anastomosis.

20. The device of claim 15, wherein said furcating structure is a bifurcating structure having a first end, a second end and a third end.

21. The device of claim 20, wherein said at least one anastomotic member comprises a first anastomotic member engaging said first end of said bifurcating structure, and a second anastomotic member engaging said second end of said bifurcating structure.

22. The device of claim 1, wherein said non-woven liner and said non-woven cover form a tubular structure.

23. The device of claim 22, wherein at least one end if said tubular structure is adapted for end-to-end anastomosis.

24. The device of claim 22, wherein at least one end if said tubular structure is adapted for end-to-side anastomosis.

25. The device of claim 22, wherein said at least one anastomotic member comprises a single anastomotic member extending over said tubular structure and protruding from at least one end of said tubular structure.

26. The device of claim 22, wherein said at least one anastomotic member comprises a first anastomotic member engaging a first end of said tubular structure, and a second anastomotic member engaging a second end of said tubular structure.

27. The device of claim 1, further comprising at least one adhesive layer for adhering at least two of: said non-woven liner, said non-woven cover and said at least one anastomotic member.

28. The device of claim 27, wherein said at least one adhesive layer is formed of a thermoplastic polymer having a characteristic melting temperature which is lower than characteristic melting temperatures of said electrospun fibers of each of said non-woven liner and said non-woven cover.

29. The device of claim 27, wherein said at least one adhesive layer comprises silicon.

30. The device of claim 1, wherein said electrospun fibers are manufactured from a liquefied polymer.

31. The device of claim 1, wherein said electrospun fibers of said non-woven liner and/or said non-woven cover are aligned at a predetermined orientation relative to a longitudinal axis of the device.

32. The device of claim 1, wherein said electrospun fibers of said non-woven liner and/or said non-woven cover are randomly aligned.

33. The device of claim 1, wherein at least a portion of said electrospun fibers of said non-woven liner and/or said non-woven cover are aligned substantially along a circumferential direction of said non-woven liner and/or said non-woven cover.

34. The device of claim 1, wherein at least one of said non-woven liner and said non-woven cover comprises at least one medicament incorporated therein, for delivery of said at least one medicament into a body vasculature during or after implantation of the device within said body vasculature.

35. The device of claim 1, wherein said non-woven liner and said non-woven cover are each independently characterized by a porosity of at least 50 %.

36. The device of claim 1, wherein said non-woven liner and said non-woven cover are each independently characterized by a porosity of from about 50 % to about 85 %.

37. The device of claim 1, wherein a thickness of said electrospun fibers is from about 100 nanometers to about 500 nanometers.

38. The device of claim 1, wherein said electrospun fibers of said non-woven liner comprise polyurethane fibers and polyester fibers.

39. The device of claim 1, wherein said electrospun fibers of said non-woven cover comprise polyurethane fibers and polyester fibers.

40. A method of manufacturing a medical device for implantation in a vessel, the method comprising:

providing at least one anastomotic member designed for engaging a wall of the vessel;

electrospinning a first liquefied polymer on a precipitation electrode, thereby providing a non-woven liner of electrospun fibers;

mounting said at least one anastomotic member onto said precipitation electrode; and

electrospinning a second liquefied polymer on at least one of: said precipitation electrode, said non-woven liner and said at least one anastomotic member, so as to provide a non-woven cover of electrospun fibers.

41. The method of claim 40, wherein said electrospinning said second liquefied polymer is done such that said at least one anastomotic member protrudes out of said non-woven cover.

42. The method of claim 40, wherein said electrospinning said second liquefied polymer is done such that said at least one anastomotic member is flush with said non-woven cover.

43. The method of claim 40, wherein said at least one anastomotic member comprises a plurality of hooks for connecting the device to said wall of the vessel.

44. The method of claim 43, wherein said at least one anastomotic member comprises an expandable supporting element.

45. The method of claim 44, further comprising mounting at least one perforated member onto said non-woven cover, wherein said at least one perforated member is designed and constructed to receive protruding portions of said plurality of hooks.

46. The method of claim 43, further comprising mounting a pressing ring on said non-woven cover, wherein said pressing ring is designed and constructed for bending protruding portions of said plurality of hooks.

47. The method of claim 41, further comprising mounting a thrust ring onto said non-woven cover, wherein said thrust ring is designed and constructed for thrusting said pressing ring.

48. The method of claim 41, further comprising connecting a lever to said thrust ring and said pressing ring.

49. The method of claim 40, further comprising repeating said electrospinning of said first and said second liquefied polymers for different orientations of said precipitation electrode, so as to form a furcating structure having a plurality of tubular branches.

50. The method of claim 40, wherein said at least one anastomotic member is adapted for end-to-end anastomosis.

51. The method of claim 40, wherein said at least one anastomotic member is adapted for end-to-side anastomosis.

52. The method of claim 49, wherein at least one end of said furcating structure is adapted for end-to-side anastomosis.

53. The method of claim 49, wherein at least one end of said furcating structure is adapted for end-to-end anastomosis.

54. The method of claim 49, wherein said furcating structure is a bifurcating structure having a first end, a second end and a third end.

55. The method of claim 54, wherein said at least one anastomotic member comprises a first anastomotic member engaging said first end of said bifurcating structure, and a second anastomotic member engaging said second end of said bifurcating structure.

56. The method of claim 40, wherein said non-woven liner and said non-woven cover form a tubular structure.

57. The method of claim 56, wherein at least one end if said tubular structure is adapted for end-to-end anastomosis.

58. The method of claim 56, wherein at least one end if said tubular structure is adapted for end-to-end anastomosis.

59. The method of claim 56, wherein said at least one anastomotic member comprises a single anastomotic member extending over said tubular structure and protruding from at least one end of said tubular structure.

60. The method of claim 56, wherein said at least one anastomotic member comprises a first anastomotic member engaging a first end of said tubular structure, and a second anastomotic member engaging a second end of said tubular structure.

61. The method of claim 40, further comprising applying pressure on at least one of said non-woven liner, said non-woven cover and said at least one anastomotic member.

62. The method of claim 40, further comprising electrospinning a third liquefied polymer prior to said mounting of said anastomotic member, wherein a boiling point of said third liquefied polymer is higher than a boiling point of said first liquefied polymer.

63. The method of claim 40, further comprising electrospinning a fourth liquefied polymer prior to said electrospinning of said second liquefied polymer, wherein a boiling point of said fourth liquefied polymer is higher than a boiling point of said second liquefied polymer.

64. The method of claim 40, further comprising applying at least one adhesive layer on at least one of said non-woven liner and said at least one anastomotic member.

65. The method of claim 64, wherein said applying said at least one adhesive layer is effected by electrospinning.

66. The method of claim 65, wherein said at least one adhesive layer is formed of a thermoplastic polymer having a characteristic melting temperature which is lower than characteristic melting temperatures of said first and said second liquefied polymers.

67. The method of claim 66, further comprising heating the device to a temperature which is above said characteristic melting temperature of said thermoplastic polymer and below said characteristic melting temperatures of said first and said second liquefied polymers.

68. The method of claim 64, wherein said applying said at least one adhesive layer comprises dipping said at least one anastomotic member in an adhesive solution prior to said mounting of said at least one anastomotic member.

69. The method of claim 68, further comprising heating said adhesive solution.

70. The method of claim 68, wherein said adhesive solution comprises silicon.

71. The method of claim 40, wherein said at least one anastomotic member comprises an expandable supporting element.

72. The method of claim 71, wherein said expandable supporting element is designed and constructed for dilating a constricted blood vessel in a body vasculature.

73. The method of claim 40, wherein said electrospun fibers of said non-woven liner and/or said non-woven cover are aligned at a predetermined orientation relative to a longitudinal axis of the device.

74. The method of claim 40, wherein said electrospun fibers of said non-woven liner and/or said non-woven cover are randomly aligned.

75. The method of claim 40, wherein at least a portion of said electrospun fibers of said non-woven liner and/or said non-woven cover are aligned substantially along a circumferential direction of said non-woven liner and/or said non-woven cover.

76. The method of claim 40, wherein at least one of said non-woven liner and said non-woven cover comprises at least one medicament incorporated therein, for delivery of said at least one medicament into a body vasculature during or after implantation of the device within said body vasculature.

77. The method of claim 40, wherein said non-woven liner and said non-woven cover are each independently characterized by a porosity of at least 50 %.

78. The method of claim 40, wherein said non-woven liner and said non-woven cover are each independently characterized by a porosity of from about 50 % to about 85 %.

79. The method of claim 40, wherein a thickness of said electrospun fibers is from about 100 nanometers to about 500 nanometers.

80. The method of claim 40, wherein said first liquefied polymer and said second liquefied polymer comprise a biocompatible polymer.

81. The method of claim 40, wherein at least a portion of said electrospun fibers is made of a biodegradable polymer.

82. The method of claim 40, wherein at least a portion of said electrospun fibers is made of a biostable polymer.

83. The method of claim 40, wherein at least a portion of said electrospun fibers is made of a combination of a biodegradable polymer and a biostable polymer.

84. The method of claim 40, further comprising electrospinning an additional liquefied polymer on at least one of: said precipitation electrode, said non-woven liner, said at least one anastomotic member and said non-woven liner.

85. The method of claim 84, wherein at least one of said first liquefied polymer and said second liquefied polymer comprises a polyurethane.

86. The method of claim 84, wherein said additional liquefied polymer comprises a polyester.

87. The method of claim 84, wherein said additional liquefied polymer comprises a mixture of a polyester and a polyurethane.

88. The method of claim 84, wherein said electrospinning of said additional liquefied polymer and said electrospinning of said first liquefied polymer is substantially contemporaneously.

89. The method of claim 84, wherein said electrospinning of said additional liquefied polymer and said electrospinning of said second liquefied polymer is substantially contemporaneously.

90. The method of claim 84, wherein said electrospinning of said additional liquefied polymer and said electrospinning of said first liquefied polymer is performed alternatingly.

91. The method of claim 84, wherein said electrospinning of said additional liquefied polymer and said electrospinning of said second liquefied polymer is performed alternatingly.

92. An anastomosis procedure, comprising:

providing a medical device having a non-woven liner of electrospun fibers, a non-woven cover of electrospun fibers and at least one anastomotic member at least partially interposing said non-woven liner and said non-woven cover;

forming a plurality of vessel openings; and

connecting said medical device to said plurality of vessel openings such that each vessel opening of said plurality of vessel openings is engaged by one end of said at least one anastomotic member.

93. The anastomosis procedure of claim 92, wherein said at least one anastomotic member protrude out of said non-woven cover.

94. The anastomosis procedure of claim 92, wherein said at least one anastomotic member are flush with said non-woven cover.

95. The anastomosis procedure of claim 92, wherein said at least one anastomotic member comprise expandable supporting elements.

96. The anastomosis procedure of claim 95, further comprising expanding said expandable supporting elements such that a pressure is generated between said non-woven cover and the plurality of vessel openings.

97. The anastomosis procedure of claim 92, wherein said at least one anastomotic member comprises a plurality of hooks for connecting the device to said wall of the vessel.

98. The anastomosis procedure of claim 97, further comprising piercing said wall of at least one vessel using said plurality of hooks, thereby mounting the device to said at least one vessel.

99. The anastomosis procedure of claim 98, wherein said piercing comprises piercing an inner wall of at least one vessel such that plurality of hooks protrudes out of an outer wall of said at least one vessel.

100. The anastomosis procedure of claim 99, further comprising receiving protruding portions of said plurality of hooks using at least one perforated member mounted on said non-woven cover.

101. The anastomosis procedure of claim 99, further comprising bending protruding portions of said plurality of hooks using a pressing ring.

102. The anastomosis procedure of claim 101, further comprising thrusting said pressing ring using a thrust ring.

103. The anastomosis procedure of claim 102, wherein said thrusting is by a lever.

104. The anastomosis procedure of claim 92, wherein said medical device forms a furcating structure having a plurality of tubular branches.

105. The anastomosis procedure of claim 104, wherein at least one opening of said plurality of vessel openings is formed on a side of a vessel.

106. The anastomosis procedure of claim 104, wherein at least one opening of said plurality of vessel openings forms a vessel end.

107. The anastomosis procedure of claim 104, wherein said furcating structure is a bifurcating structure having a first end, a second end and a third end.

108. The anastomosis procedure of claim 107, wherein said at least one anastomotic member comprises a first anastomotic member engaging said first end of said bifurcating structure, and a second anastomotic member engaging said second end of said bifurcating structure.

109. The anastomosis procedure of claim 92, wherein said electrospun fibers of said non-woven liner and/or said non-woven cover are aligned at a predetermined orientation relative to a longitudinal axis of the device.

110. The anastomosis procedure of claim 92, wherein said electrospun fibers of said non-woven liner and/or said non-woven cover are randomly aligned.

111. The anastomosis procedure of claim 92, wherein at least a portion of said electrospun fibers of said non-woven liner and/or said non-woven cover are aligned substantially along a circumferential direction of said non-woven liner and/or said non-woven cover.

112. The anastomosis procedure of claim 92, wherein at least one of said non-woven liner and said non-woven cover comprises at least one medicament incorporated therein, for delivery of said at least one medicament into a body vasculature during or after implantation of the device within said body vasculature.

113. The anastomosis procedure of claim 92, further comprising introducing at least one balloon into a lumen of at least one vessel, and inflating said balloon so as to reduce flow of fluids into regions being nearby to at least one opening of said plurality of vessel openings.

114. The anastomosis procedure of claim 92, further comprising applying an under pressure substantially contemporaneously with said formation of said plurality of vessel openings, so as to remove fluids and tissue debris from regions being nearby to at least one opening of said plurality of vessel openings.

115. A kit for performing an end-to-side anastomosis procedure, comprising:

a medical device for implantation in a vessel, said medical device comprising at least one anastomotic member at least partially interposing a non-woven liner of electrospun fibers and a non-woven cover of electrospun fibers, wherein said at least one anastomotic member is designed for engaging at least one end of the medical device to a wall of said vessel upon implantation of said medical device within said vessel; and

an accessory device for forming an opening in said wall of said vessel, said accessory device comprising a tubular encapsulation designed and constructed for receiving said medical device, a cutting member integrated with or attached to an end of said tubular encapsulation and capable of forming an opening in said wall of said vessel, and a vacuum channel for channeling efflux of biological material from said tubular encapsulation.

116. The kit of claim 115, wherein said at least one anastomotic member protrudes out of said non-woven cover.

117. The kit of claim 115, wherein said at least one anastomotic member is flush with said non-woven cover.

118. The kit of claim 115, wherein said at least one anastomotic member comprises an expandable supporting element.

119. The kit of claim 118, wherein said engaging said at least one end of the medical device to said wall of the vessel is effected by pressure generated by an expansion of said expandable supporting element.

120. The kit of claim 115, wherein said at least one anastomotic member comprises a plurality of hooks for connecting the device to said wall of the vessel.

121. The kit of claim 115, wherein said medical device further comprises a ring-shaped protuberance designed and constructed to prevent the device from falling into a lumen of the vessel.

122. The kit of claim 120, wherein said at least one anastomotic member comprises an expandable supporting element.

123. The kit of claim 122, wherein said plurality of hooks is designed and constructed such that when said expandable supporting element expands, said plurality of hooks pierce said wall of the vessel, thereby mounting the device to the vessel.

124. The kit of claim 122, wherein said plurality of hooks is designed and constructed to pierce an inner wall of the vessel and to protrude out of an outer wall of the vessel.

125. The kit of claim 124, wherein said medical device further comprises at least one perforated member mounted on said non-woven cover in a manner such that protruding portions of said plurality of hooks engage said at least one perforated member.

126. The kit of claim 124, wherein said medical device further comprises a pressing ring for bending protruding portions of said plurality of hooks, thereby perverting detachment of said plurality of hooks from said wall of the vessel.

127. The kit of claim 126, wherein said medical device further comprises a thrust ring for thrusting said pressing ring.

128. The kit of claim 126, wherein said medical device further comprises a lever for establishing contact between said thrust ring and said pressing ring.

129. The kit of claim 115, wherein said medical device forms a furcating structure having a plurality of tubular branches.

130. The kit of claim 129, wherein at least one end of said furcating structure is adapted for end-to-side anastomosis.

131. The kit of claim 129, wherein at least one end of at least one end of said furcating structure is adapted for end-to-end anastomosis.

132. The kit of claim 129, wherein said furcating structure is a bifurcating structure having a first end, a second end and a third end.

133. The kit of claim 132, wherein said at least one anastomotic member comprises a first anastomotic member engaging said first end of said bifurcating structure, and a second anastomotic member engaging said second end of said bifurcating structure.

134. The kit of claim 115, wherein said non-woven liner and said non-woven cover form a tubular structure.

135. The kit of claim 134, wherein at least one end of at least one end if said tubular structure is adapted for end-to-end anastomosis.

136. The kit of claim 134, wherein at least one end if said tubular structure is adapted for end-to-side anastomosis.

137. The kit of claim 134, wherein said at least one anastomotic member comprises a single anastomotic member extending over said tubular structure and protruding from at least one end of said tubular structure.

138. The kit of claim 134, wherein said at least one anastomotic member comprises a first anastomotic member engaging a first end of said tubular structure, and a second anastomotic member engaging a second end of said tubular structure.

139. The kit of claim 115, wherein said medical device further comprises at least one adhesive layer for adhering at least two of: said non-woven liner, said non-woven cover and said at least one anastomotic member.

140. The kit of claim 139, wherein said at least one adhesive layer is formed of a thermoplastic polymer having a characteristic melting temperature which is lower than characteristic melting temperatures of said electrospun fibers of each of said non-woven liner and said non-woven cover.

141. The kit of claim 139, wherein said at least one adhesive layer comprises silicon.

142. The kit of claim 115, wherein said at least one anastomotic member comprises an expandable supporting element.

143. The kit of claim 142, wherein said expandable supporting element is designed and constructed for dilating a constricted blood vessel in a body vasculature.

144. The kit of claim 115, wherein said electrospun fibers are made of a biocompatible polymer.

145. The kit of claim 115, wherein at least a portion of said electrospun fibers is made of a biodegradable polymer.

146. The kit of claim 115, wherein at least a portion of said electrospun fibers is made of a biostable polymer.

147. The kit of claim 115, wherein at least a portion of said electrospun fibers is made of a combination of a biodegradable polymer and a biostable polymer.

148. The kit of claim 115, wherein said electrospun fibers are manufactured from a liquefied polymer.

149. The kit of claim 115, wherein said electrospun fibers of said non-woven liner and/or said non-woven cover are aligned at a predetermined orientation relative to a longitudinal axis of the device.

150. The kit of claim 115, wherein said electrospun fibers of said non-woven liner and/or said non-woven cover are randomly aligned.

151. The kit of claim 115, wherein at least a portion of said electrospun fibers of said non-woven liner and/or said non-woven cover are aligned substantially along a circumferential direction of said non-woven liner and/or said non-woven cover.

152. The kit of claim 115, wherein at least one of said non-woven liner and said non-woven cover comprises at least one medicament incorporated therein, for delivery of said at least one medicament into a body vasculature during or after implantation of the device within said body vasculature.

153. The kit of claim 115, wherein said non-woven liner and said non-woven cover are each independently characterized by a porosity of at least 50 %.

154. The kit of claim 115, wherein said non-woven liner and said non-woven cover are each independently characterized by a porosity of from about 50 % to about 85 %.

155. The kit of claim 115, wherein a thickness of said electrospun fibers is from about 100 nanometers to about 500 nanometers.

156. The kit of claim 115, wherein said electrospun fibers of said non-woven liner comprise polyurethane fibers and polyester fibers.

157. The kit of claim 115, wherein said electrospun fibers of said non-woven cover comprise polyurethane fibers and polyester fibers.